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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,841	02/11/2002	Keiji Emoto	00862.022517	8954
5514	7590	03/10/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			JONES, JUDSON	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	
			2834	

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/068,841

Applicant(s)

EMOTO, KEIJI

Examiner

Judson H. Jones

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-31 and 34-45 is/are pending in the application.  
4a) Of the above claim(s) 21 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28,31 and 34 is/are allowed.
- 6) ☒ Claim(s) 10,11,13,14,17-23,25,26,29,30,35,38 and 40-45 is/are rejected.
- 7) ☒ Claim(s) 12,15,16,24,27,36,37 and 39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                             |                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>052404</u> . | 6) <input checked="" type="checkbox"/> Other: <u>2 more 1449s</u> .                     |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10, 13, 14, 17-20, 26 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohzeki 6,184,596 B1 in view of Taniguchi 4,492,356 and Kikui et al. 6,080,498. Ohzeki teaches in using a linear motor in vacuum conditions for a lithography device in column a line 66 to column 2 line 5. In column 9 line 58 to column 6 line 10 Ohzeki teaches enclosing the coils to prevent gas from the coil insulation material from being released into a clean room but does not mention anything about gas from the permanent magnets. Taniguchi et al. teaches in column 1 line 14 to 24 that circuit patterns on wafers are being made smaller and smaller. In order to achieve this, the cleanliness of the clean room has to be increased. Kikui et al. teaches in column 2 lines 25-36 that permanent magnets can release contaminated gas and teaches in column 2 lines 39-55 applying a film of thallium and then a film of nitrogen diffused thallium to a permanent R-Fe-B magnet in order to prevent contaminated gas from being released into a clean room. Since Kikui et al., Taniguchi and Ohzeki are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized a metallic film such as Ti on a magnet used in a linear motor used in a lithography device in order increase the precision of the device by preventing contaminated gas from being released into a clean room.

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In regard to claim 10, thallium is a non-magnetic metal.

In regard to claim 13, see Kikui et al. column 7 line 64 to column 8 line 5.

In regard to claim 14, see Kikui et al. column 2 lines 47-50.

In regard to claim 17, see the abstract of Ohzeki.

In regard to claim 18, see Ohzeki column 9 line 66 to column 10 line 2.

In regard to claims 19-20, see Ohzeki column 1 lines 10-15.

In regard to claim 26, see Ohzeki figure 1 where the movable element 401 has magnets and the fixed element 402 has coils.

In regard to claim 29, see Ohzeki column 10 lines 12 ½ to 20 ½.

Claims 22, 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohzeki in view of Sato et al. 6,677,692 B1. Ohzeki teaches a linear motor with a coil, magnet and cooling system in column 10 lines 13-21 but does not disclose a metal film on a surface of said magnet. Sato et al. teaches applying a film to a magnet in order to prevent the magnet from being damaged in column 2 lines 34-39. Since Sato et al. and Ohzeki are both electric motors with magnets that can be damaged, it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized a metal film to protect the magnets of a linear motor in order to prevent the magnets from being damaged.

In regard to claims 10 and 11, see Sato et al. column 2 lines 65-67.

Claims 23, 25, 35 and 38, 40-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohzeki in view of Chung et al. 6,451,140 B1. Ohzeki teaches a linear motor with a coil, magnet and cooling system in column 10 lines 13-21. Ohzeki does not teach a metal film provided in a surface of a cooling jacket. Chung et al. teaches in column 1 lines 15-29 that

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stainless steels are preferred in clean rooms because that have low out-gassing rates and further teaches placing a chromium oxide film on stainless steel in column 1 lines 41-56. Since Chung et al. and Ohzeki are from the same field of endeavor it would have been obvious at the time the invention was made for one of ordinary skill in the art to have utilized a film on a stainless steel cooling jacket in order to prevent contaminated gas from being released into a clean room.

In regard to claim 25, see fixed stage 402 in Ohzeki figure 1 where coils 405a, 405b and 405c are supported by a yoke within jacket 407.

In regard to claim 35, see Chung et al. column 1 line 54 to column 2 line 3. Chromium oxide is not a magnetic material.

In regard to claim 38, see Chung et al. column 4 lines 26-28.

In regard to claim 41, see Ohzeki et al. figure 1 where the plenum (the cooling jacket) is attached to the stator and thus is grounded. A film on the cooling jacket would also be grounded.

In regard to claim 42, see Ohzeki et al. column 1 lines 10-16 and see figure 1.

In regard to claim 43, see Ohzeki et al. column 1 line 66 to column 2 line 5.

In regard to claims 44 and 45, see Ohzeki et al. column 1 lines 10-16.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohzeki et al. in view of Taniguchi, Kikui et al. and Chung et al. Ohzeki et al. as modified by Taniguchi and Kikui et al. discloses the stator with the jacket for refrigerant but does not disclose a metal film provided at a surface of said jacket. Chung et al. teaches putting a metal film on an exposed metal surface in order to prevent contaminated gas from being released into a clean room. Since Chung et al. and Ohzeki et al. are from the same field of endeavor it would have been obvious at

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the time the invention was made for one of ordinary skill in the art to have utilized a metal film on a cooling jacket in order to prevent contaminated gas from being released into a clean room.

***Allowable Subject Matter***

Claims 28, 31 and 34 are allowed.

Claims 12, 15, 16, 24, 27, 36, 37 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record does not disclose or teach a metal film containing gold covering the magnets of a linear motor in combination with the other features of claim 12. The prior art of record does not disclose or teach mirror polishing the metal film over a magnet in combination with the other features of claim 15. The prior art of record does not disclose or teach grounding the metal film over a magnet in combination with the other features of claim 16. The prior art of record does not disclose or teach covering the surface of a cooling jacket with nickel or gold and then polishing the surface of the jacket in combination with the other features of claim 24. The prior art of record does not disclose or teach covering the support structure of a linear motor with a metal film in combination with the other features of claim 27. The prior art of record does not disclose or teach a linear motor with a metal surface subject to mirror polishing and arranged between a coil and a support member in combination with the other features of claim 34. The prior art of record does not disclose or teach covering the surface of a cooling jacket with nickel in combination with the other features of claim 36. The prior art of record does not disclose or teach covering the surface of a cooling jacket with gold in combination with the other features of

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claim 37. The prior art of record does not disclose or teach plating the surface of a cooling jacket with a metal film in combination with the other features of claim 39.

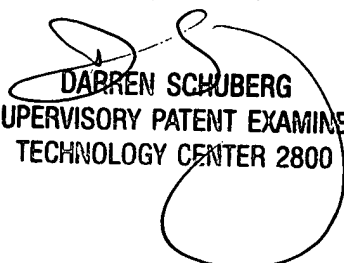
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kanno et al. 6,646,233 B2 discloses a device with a mirror polished water cooling jacket but the application was filed after the instant application. Freitag et al. 6,824,277 B1 discloses a nickel, silver or gold film placed on the frame of an optical beam guidance system but the application was filed after the instant application. Ohtomo et al. 6,012,697 teaches fixed and movable stage elements of ceramic material. A film on a magnet is electrically connected to the magnet but a magnet on a ceramic stage is not connected to ground as recited in claim 16.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Judson H. Jones whose telephone number is 571-272-2025. The examiner can normally be reached on 8-4:30 M-F. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JHJ 3/1/2005



DARREN SCHUBERG  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800